

ABSTRACT OF THE DISCLOSURE

1 A method and apparatus for initiating a rapid and long-lasting pH change to a pH  
2 dependent polymer or other pH driven reactant is provided by a pH jump molecule in solution.  
3 Visible light is used to excite the pH jump molecule. The attendant pH change occurs rapidly (in  
4 nanoseconds) and can be maintained by continuous wave light or by an appropriately pulsed  
5 light. Heat resulting from the light activation is efficiently discharged by radiative decay through  
6 room temperature phosphorescence lifetimes existing on the order of milliseconds.  
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